

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1 (original): A fuel cell comprising:

a fuel cell main unit which includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode; and

a vibration generating unit which generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed,

wherein said vibration generating unit is driven by a part of an output of said fuel cell main unit.

Claim 2. (currently amended): The fuel cell according to claim 1, further comprising:

a control unit, a first voltmeter connected to a load, a second voltmeter connected to said fuel cell main unit, and an ammeter which measures the current from said fuel cell main unit to said load, and

wherein said control unit~~which~~ controls an operation of said vibration generating unit based on outputs supplied by said first voltmeter, second voltmeter, and ammeter~~an output of said fuel cell main unit.~~

Claim 3. (currently amended): The fuel cell according to claim 1 , further comprising:

a power applying unit which converts direct current into alternating electric power and outputs said alternating electric power to said vibration generating unit, wherein said vibration generating unit is driven by said alternating electric power.

Claim 4: (canceled).

Claim 5. (previously presented): The fuel cell according to claim 1, wherein said vibration generating unit includes a piezoelectric vibrator which generates said vibration.

Claim 6. (previously presented): The fuel cell according to claim 1, wherein said vibration generating unit is arranged on said fuel cell main unit.

Claim 7. (previously presented): The fuel cell according to claim 1, further comprising:

a holding substrate on which holds said fuel cell main unit and said vibration generating unit,

wherein said holding substrate transmits said vibration to said fuel cell main unit.

Claim 8. (currently amended): The fuel cell according to claim 1, wherein said fuel cell main unit includes a porous fuel electrode side current collector that is coated by hydrophilic coating material.

Claim 9. (currently amended): The fuel cell according to claim 1, wherein said fuel cell main unit includes a porous fuel electrode side current collector that is coated by hydrophobic coating material.

Claim 10. (currently amended): The fuel cell according to claim 1, wherein said fuel electrode includes:

a current collector, and

a fuel electrode catalyst layer of which one side is connected to said current collector and another side is connect to a polymer electrolyte membrane,

said current collector has at least one hole ~~holes which penetrates~~ ~~penetrate~~ said current collector,

wherein a diameter ~~diameters~~ of said at least one hole ~~holes~~ at a side of said fuel electrode catalyst layer ~~is are~~ smaller than a diameter of said at least one hole ~~these~~ at an opposite side.

Claim 11. (currently amended): A ~~potable~~ portable information device comprising:

a body; and

a fuel cell which is held on said body,

wherein said fuel cell comprising:

a fuel cell main unit which is arranged in said body, includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode, and

a vibration generating unit which is arranged in said body and generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed;

and

wherein said vibration generating unit is driven by a part of an output of said fuel cell main unit.

Claim 12. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said fuel cell further comprises:

a control unit, a first voltmeter connected to a load, a second voltmeter connected to said fuel cell main unit, and an ammeter which measures the current from said fuel cell main unit to said load, and

wherein said control unit~~which~~ controls an operation of said vibration generating unit based on outputs supplied by said first voltmeter, second voltmeter, and ammeter~~an output of said fuel cell main unit.~~

Claim 13. (currently amended): The ~~potable~~portable information device according to claim 11 , wherein said fuel cell further comprises:

a power applying unit which converts direct current into alternating electric power and outputs said alternating electric power to said vibration generating unit, wherein said vibration generating unit is driven by said alternating electric power.

Claim 14: (canceled).

Claim 15. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said vibration generating unit includes a piezoelectric vibrator which generates said vibration.

Claim 16. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said vibration generating unit is arranged on said fuel cell main unit.

Claim 17. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said fuel cell further comprises:

a holding substrate on which holds said fuel cell main unit and said vibration generating unit, and

said holding substrate transmits said vibration to said fuel cell main unit.

Claim 18. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said fuel cell main unit includes a porous fuel electrode side current collector that is coated by hydrophilic coating material.

Claim 19. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said fuel cell main unit includes a porous fuel electrode side current collector that is coated by hydrophobic coating material.

Claim 20. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said fuel electrode includes:

a current collector, and

a fuel electrode catalyst layer of which one side is connected to said current collector and another side is connect to a polymer electrolyte membrane,

said current collector has at least one hole ~~holes~~ which penetrates ~~penetrate~~ said current collector,

wherein a diameter ~~diameters~~ of said at least one hole ~~holes~~ at a side of said fuel electrode catalyst layer ~~is~~ are smaller than a diameter of said at least one hole ~~these~~ at an opposite side.

Claim 21. (currently amended): The ~~potable~~portable information device according to claim 11, wherein said body includes:

an outer body,

an inner body which is contained in said outer body, and

a vibration damping material which connects said outer body and said inner body,
said fuel cell is held on said inner body.

Claim 22. (currently amended): The ~~potable~~ portable information device according to claim 21, further comprising:

an information notifying unit which is arranged on said inner body, transmits said vibration to said outer body and notifies information to a user by vibrating said outer body based on said vibration.

Claim 23. (currently amended): The ~~potable~~ portable information device according to claim 11, wherein said vibration generating unit is combined with a information notifying unit which transmits said vibration to said body and notifies information to a user by vibrating said body based on said vibration.

Claim 24. (currently amended): The ~~potable~~ portable information device according to claim 21 , wherein said vibration damping material includes butyl rubber.

Claim 25. (currently amended): A cellular phone comprising:

a body; and

a fuel cell which is held on said body,

wherein said fuel cell comprising:

a fuel cell main unit which is arranged in said body, includes a fuel electrode and an oxidant electrode, and generates electric power based on supplying of organic liquid fuel to said fuel electrode and oxidant to said oxidant electrode, and

a vibration generating unit which is arranged in said body and generates vibration to vibrate said fuel electrode such that carbon dioxide generated at said fuel electrode is removed,

said vibration generating unit is combined with a information notifying unit which transmits said vibration to said body and notifies information to a user by vibrating said body based on said vibration;

wherein said vibration generating unit is driven by a part of an output of said fuel cell main unit.

Claim 26. (currently amended): An operation method of a fuel cell, comprising:

(a) generating electric power by supplying organic liquid fuel to a fuel electrode and oxidant to an oxidant electrode of said fuel cell; and

(b) vibrating said fuel electrode such that carbon dioxide generated at said fuel electrode is removed;

wherein said vibration is generated by using a part of output current of said fuel cell.

Claim 27. (original): The operation method of a fuel cell according to claim 26, wherein said vibration is generated by a piezoelectric vibrator to which alternating current is supplied.

Claim 28 (canceled).

Claim 29. (previously presented): The operation method of a fuel cell according to claim 26 wherein said step (b) comprises:

(b1) vibrating said fuel electrode when an output of said fuel cell is lower than a threshold value.